

# **Cost of Service Based Water and Wastewater Rates**

**City of Wichita, Kansas**

**November 27, 2007**

# Current Utility Rate Status

- Last Comprehensive Rate Study Completed in 1991
- Across-the-Board Increases since 1993
- Review of Rate Structure in 1999
- Need to review whether existing rates are commensurate with the cost of providing service
- Revenue neutrality

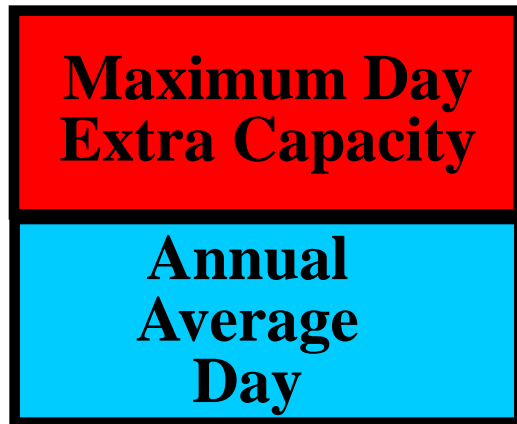
# Project Approach - Water

- Utility Basis of Rate Design
- Base – Extra Capacity Cost Allocation Methodology
- Special Considerations
  - Wholesale Customers

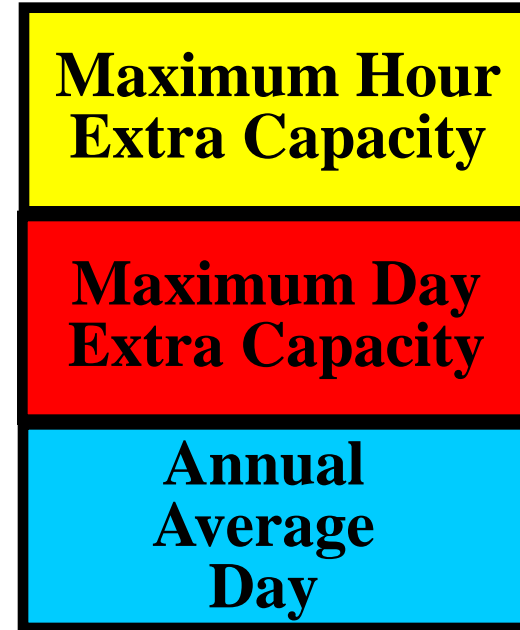
# Water Utility – Cost Causative Components

- Base – Average Day Water Use
- Maximum Day – Peak maximum day demand exerted on the system
- Maximum Hour – Peak maximum hour demand exerted on the system
- Customer Requirements
  - Meter Reading & Billing
  - Meters and Services
- Fire Protection

# Water Cost of Service Concepts



**Treatment Plant**



**Water Mains**

# Wastewater Utility Cost Causative Components

- Volume – Average day wastewater discharge
- Capacity – Peak wastewater discharge
- Wastewater Strength
  - Biochemical Oxygen Demand (BOD)
  - Suspended Solids
  - Grease
- Customer
- Infiltration/Inflow

# Revenue and Revenue Requirements

- Overall objective is to provide adequate funding of future utility operating and capital program needs with minimum adverse impact on overall level of customer charges



# Cost of Service Allocations

- Overall objective is to Provide an Equitable Measure of Costs for the Subsequent Design of Cost Based Rates of Charge





# Rate Design

- Overall Objective is to Establish Rates That Recognize Allocated Costs of Service and are Also Understandable and Fair



# Current Retail Water Rate Structure

- Base charge varies by meter size (no usage included in base)
- 3-block volume charge based on Average Winter Consumption (AWC)
  - Block 1: Metered consumption through 110% of AWC
  - Block 2: Metered consumption Between 111% and 310% of AWC
  - Block 3: Metered consumption above 310% of AWC

# Adopted and Proposed Water Rates

	Adopted Rates		Proposed Rates	
	Inside City	Outside City	Inside City	Outside City
<b>Minimum Charge - \$/month</b>				
5/8"	6.27	10.02	6.25	10.00
3/4"	6.32	10.11	6.25	10.00
1"	6.52	10.44	6.25	10.00
1 1/2"	6.79	10.87	6.80	10.88
2"	7.50	11.99	7.70	12.32
3"	12.87	20.59	14.50	23.20
4"	14.86	23.77	17.00	27.20
6"	19.49	31.18	23.00	36.80
8"	24.78	49.64	30.00	48.00
10"	28.10	44.97	38.00	60.80
12"	35.38	56.62	43.00	68.80
<b>Volume Charge (a) - \$/Mgal</b>				
0% - 110% of AWC	0.88	1.41	0.90	1.44
111% - 310% of AWC	3.17	5.07	3.22	5.15
Above 310% of AWC	4.76	7.62	4.84	7.74
<b>Conservation Contract Rates - \$/Mgal</b>				
All Usage	2.08	3.33	2.05	3.28
<b>Wholesale Volume Rates - \$/Mgal</b>				
0% - 110% of AWC		0.96		1.09
111% - 310% of AWC		5.08		3.90
Above 310% of AWC		7.58		5.86

# Comparison of Water Revenue Under Proposed Rates with Allocated Cost of Service

		(1)	(2)	(3)
		Revenue	Adjusted	Revenue
		Under	Cost of	Under
		Proposed	Service	Adopted
		Rates		Rates
Line	No.			
		<u>                    </u>	<u>                    </u>	<u>                    </u>
		\$	\$	\$
1	Inside City	38,558,200	37,879,400	38,251,500
2	Outside City	5,370,800	5,890,200	5,318,700
3	Wholesale	2,373,600	2,393,600	2,554,900
4	Total	<u>46,302,600</u>	<u>46,163,200</u>	<u>46,125,100</u>

# Typical Water Bills

Customer Class	Gallons per Month	Inside City			Outside City		
		Monthly Increase		Monthly Bill	Monthly Increase		Monthly Bill
		Adopted Rates	Proposed Rates		Adopted Rates	Proposed Rates	
		\$	\$	\$	\$	\$	\$
Residential - Low	3,740						
Water		0.55	0.61	9.62	0.83	0.93	15.39
Sewer							
Total							
Residential - Mid	7,480						
Water		0.85	1.00	15.02	1.35	1.60	24.04
Sewer							
Total							
Residential - High	11,220						
Water		1.52	1.87	27.07	2.43	2.98	43.30
Sewer							
Total							
Assumes 5/8-inch meter and AWC = 6,000 gallons							
Commercial/Light Industrial	374,000						
Water		19.13	26.81	344.30	30.59	42.14	550.88
Sewer							
Total							
Assumes 2-inch meter and AWC = 374,000 gallons							
Industrial	7,480,000						
Water		375.11	528.22	6,755.00	600.17	830.19	10,808.00
Sewer							
Total							
Assumes 6-inch meter and AWC = 7,480,000							

# Current Retail Sewer Rate Structure

- Base charge varies by meter size (no usage included in base)
- Uniform volume charge per 1,000 gallons based on
  - AWC or metered water consumption whichever is less for residential customers
  - Commercial and industrial customers charged on basis of actual water consumption or actual metered sewerage discharge

# Adopted and Proposed Sewer Rates

	Adopted Rates		Proposed Rates	
	Inside City	Outside City	Inside City	Outside City
<b>Minimum Charge - \$/month</b>				
5/8"	3.81	6.09	5.13	8.21
3/4"	4.17	6.66	5.13	8.21
1"	5.28	8.45	5.13	8.21
1 1/2"	6.84	10.95	6.10	9.76
2"	10.99	17.59	7.90	12.64
3"	41.71	66.73	20.50	32.80
4"	53.06	84.89	25.00	40.00
6"	79.62	127.39	36.00	57.60
8"	109.93	175.89	49.00	78.40
10"	128.90	206.24	63.00	100.80
12"	170.60	272.97	74.00	118.40
<b>Volume Charge - \$/Mgal</b>				
All Usage	1.83	2.93	1.75	2.80
<b>Flat Rate - \$/month</b>				
	16.58	26.52	17.16	27.46
<b>Wholesale Volume Rates - \$/Mgal</b>				
All Usage		1.34		2.01
<b>Excess Strength Charges (a) - \$/lb</b>				
BOD	0.1207	0.1931	0.1138	0.1822
SS	0.0804	0.1286	0.1168	0.1869
Grease	1.5672	2.5074	1.4784	2.3655

# Comparison of Sewer Revenue Under Proposed Rates with Allocated Cost of Service

		(1)	(2)	(4)
		Revenue Under Proposed Rates	Allocated Cost of Service	Revenue Under Adopted Rates
Line No.		<u>                    </u> \$	<u>                    </u> \$	<u>                    </u> \$
1	Inside City	29,915,100	29,617,100	29,768,700
2	Outside City	3,854,000	4,131,900	4,021,600
3	Wholesale	261,500	261,700	174,300
4	Total	<u>34,030,600</u>	<u>34,010,700</u>	<u>33,964,600</u>



# Typical Sewer Bills

Customer Class	Gallons per Month	Inside City			Outside City		
		Monthly Increase		Monthly Bill	Monthly Increase		Monthly Bill
		Adopted Rates	Proposed Rates		Adopted Rates	Proposed Rates	
		\$	\$	\$	\$	\$	\$
Residential - Low	3,740						
Water							
Sewer		0.59	1.62	11.68	0.94	2.57	18.68
Total							
Residential - Mid	7,480						
Water							
Sewer		0.82	1.66	15.63	1.30	2.64	25.01
Total							
Residential - High	11,220						
Water							
Sewer		0.82	1.66	15.63	1.30	2.64	25.01
Total							
Assumes 5/8-inch meter and AWC = 6,000 gallons							
Commercial/Light Industrial	374,000						
Water							
Sewer		38.02	5.01	662.40	60.87	7.30	1,059.84
Total							
Assumes 2-inch meter and AWC = 374,000 gallons							
Industrial	7,480,000						
Water							
Sewer		752.51	110.49	13,126.00	1,204.01	161.82	21,001.60
Total							
Assumes 6-inch meter and AWC = 7,480,000							

# Typical Combined Bills

Customer Class	Gallons per Month	Inside City			Outside City		
		Monthly Increase		Monthly Bill	Monthly Increase		Monthly Bill
		Adopted Rates	Proposed Rates		Adopted Rates	Proposed Rates	
		\$	\$	\$	\$	\$	\$
Residential - Low	3,740						
Water		0.55	0.61	9.62	0.83	0.93	15.39
Sewer		<u>0.59</u>	<u>1.62</u>	<u>11.68</u>	<u>0.94</u>	<u>2.57</u>	<u>18.68</u>
Total		1.14	2.23	21.30	1.77	3.50	34.07
Residential - Mid	7,480						
Water		0.85	1.00	15.02	1.35	1.60	24.04
Sewer		<u>0.82</u>	<u>1.66</u>	<u>15.63</u>	<u>1.30</u>	<u>2.64</u>	<u>25.01</u>
Total		1.67	2.66	30.65	2.65	4.24	49.05
Residential - High	11,220						
Water		1.52	1.87	27.07	2.43	2.98	43.30
Sewer		<u>0.82</u>	<u>1.66</u>	<u>15.63</u>	<u>1.30</u>	<u>2.64</u>	<u>25.01</u>
Total		2.34	3.53	42.70	3.73	5.62	68.31
Assumes 5/8-inch meter and AWC = 6,000 gallons							
Commercial/Light Industrial	374,000						
Water		19.13	26.81	344.30	30.59	42.14	550.88
Sewer		<u>38.02</u>	<u>5.01</u>	<u>662.40</u>	<u>60.87</u>	<u>7.30</u>	<u>1,059.84</u>
Total		57.15	31.82	1,006.70	91.46	49.44	1,610.72
Assumes 2-inch meter and AWC = 374,000 gallons							
Industrial	7,480,000						
Water		375.11	528.22	6,755.00	600.17	830.19	10,808.00
Sewer		<u>752.51</u>	<u>110.49</u>	<u>13,126.00</u>	<u>1,204.01</u>	<u>161.82</u>	<u>21,001.60</u>
Total		1,127.62	638.71	19,881.00	1,804.18	992.01	31,809.60
Assumes 6-inch meter and AWC = 7,480,000							

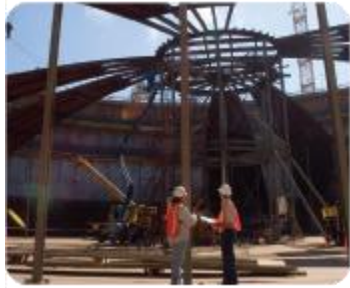
# Pricing Objectives

- Equity/Fairness
- Conservation
- Growth Pays for Itself
- Impact on Customers

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# Discussion